

CLAIMS

1. Method for correction of an erroneous design made in a first thin layer comprising at least one first engraved sub-layer (120, 620, 820) comprising said erroneous design and at least one second sub-layer (110, 610, 810) located between a substrate (100, 600, 800) and the first sub-layer, the method comprising the steps of:
- a) depositing a second thin layer (300, 700, 900) on said first thin layer,
  - b) engraving or lithography of said second thin layer, as a function of the desired correction or corrections,
  - c) etching of the second sub-layer (110, 610, 810) through the first sub-layer (120, 620, 820).
2. Correction method as claimed in Claim 1, the correction consisting of an addition of one or more patterns ( $M_2$ ).
3. Correction method as claimed in any one of Claims 1 or 2, in which one or more patterns ( $M_2$ ) are missing from said design, the lithography step comprising the reproduction in said second thin layer (300, 900) of the missing patterns.
4. Correction method as claimed in any one of Claims 1 to 3, further comprising the etching of the first sub-layer (120) through the second thin layer (300) after step b) and prior to step c).

5. Correction method as claimed in Claim 4, further comprising the removing of the second thin layer (300) after the step of etching of the first sub-layer (120) through the second thin layer (300) and prior to step c).

6. Correction method as claimed in Claim 1, the correction consisting of removing of one or more patterns ( $M'_1$ ).

7. Correction method as claimed in Claim 6, in which one or more patterns ( $M'_1$ ) are in excess, the lithography step in said second thin layer (700) leaving one or more blocks ( $C_2$ ) filling said patterns in excess.

8. Correction method as claimed in Claim 1, the correction consisting of adding one or more missing patterns ( $M_6$ ) then eliminating one or more other patterns in excess ( $M'_2$ ).

9. Correction method as claimed in Claim 8, comprising, after step b) and prior to step c), the steps of:

- etching of the first sub-layer (820) through the second thin layer (900),
- removing of the second thin layer (900),
- depositing a third thin layer (950) on the first sub-layer (820),

- second lithography in said third thin layer (950) leaving blocks filling (C<sub>4</sub>) said patterns in excess.

5                    10. Method as claimed in Claim 9, the third thin layer (950) being a dielectric layer.

10                   11. Method as claimed in Claim 10, the third thin layer (950) being a resin or polymer layer.

12. Method as claimed in any one of Claims 9 to 11, the third thin layer (950) being a positive or negative photosensitive resin layer.

15                   13. Method as claimed in any one of Claims 9 to 12, comprising removing of the third thin layer (950) after step c).

20                   14. Correction method as claimed in any one of Claims 1 to 13, further comprising removing of the first sub-layer (820) after step c) of etching of the second sub-layer (810) through first sub-layer.

25                   15. Method as claimed in any one of Claims 1 to 14, in which the first sub-layer (120, 620, 820) is based on a first conductive, or semiconductive, or insulating material and the second sub-layer (110, 610, 810) located between the substrate (100, 600, 800) and the first sub-layer is based on a second conductive, or  
30                   semiconductive, or insulating material different from the first material.

16. Method as claimed in any one of Claims 1 to 15, in which the first sub-layer (120, 620, 820) is a sacrificial layer.

5           17. Method for correction of an erroneous design made in a first thin layer (110), at least partially etched, comprising the steps of:

a) depositing a second thin layer (300) on said first thin layer (110),

10           b) engraving or lithography in said second thin layer (300) as a function of the desired correction,

c) etching of the first thin layer (110) through the second thin layer (300).

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18. Method for correction of an erroneous design lacking one or more patterns ( $M_3$ ) as claimed in Claim 17, the lithography step comprising reproduction of the missing patterns in said second thin layer.

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19. Method for correction of a design as claimed in any one of Claims 17 or 18, further comprising removing of the second thin layer (300) after the step of etching of the first thin layer (110) through the second thin layer (300).

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20. Method as claimed in any one of Claims 1 to 19, the second thin layer (300, 700, 900) being a dielectric layer.

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21. Method as claimed in any one of Claims 1 to 20, the second thin layer (300, 700, 900) being a resin or polymer layer.

5           22. Method as claimed in any one of Claims 1 to 21, the lithography step or the lithography steps being carried out by direct writing.

10           23. Method as claimed in any one of Claims 1 to 22, the lithography step or the lithography steps being carried out by means of one or more optical particle beams.

15           24. Method as claimed in Claim 23, the beam or the beams being selected from among the following beams: ion beam, electron beam, proton beam, X-ray beam, laser beam, UV beam.

20           25. Method as claimed in Claim 23 or 24, the beam being controlled by means of a digital device associated with a data medium comprising data relative to the erroneous design and to a desired corrected design.

25           26. Lithography device suitable for carrying out one or more of said lithography steps of the method as claimed in any one of Claims 1 to 25, comprising:

30           - first means, suitable for producing at least one lithography beam,

- second means for processing data relative to an erroneous design formed in a thin layer, and data relative to a desired corrected design, and for producing correction data following such processing,

5           - third means for controlling the first means, from correction data produced by the second means.